

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 March 2004 (04.03.2004)

PCT

(10) International Publication Number
WO 2004/018493 A1

(51) International Patent Classification⁷: **C07H 19/06**,
19/10, 19/16, 19/20, 19/23, 21/00, C12Q 1/68, G01N
33/53

(21) International Application Number:
PCT/GB2003/003690

(22) International Filing Date: 22 August 2003 (22.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/227,131 23 August 2002 (23.08.2002) US

(71) Applicant (for all designated States except US): **SOLEXA LIMITED** [GB/GB]; Chesterford Research Park, Little Chesterford, Nr. Saffron Walden, Essex CB10 1XL (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MILTON, John** [GB/GB]; Solexa Limited, Chesterford Research Park,

Little Chesterford, Nr. Saffron Walden, Essex CB10 1XL (GB). **RUEDIGER, Silke** [DE/GB]; Solexa Limited, Chesterford Research Park, Little Chesterford, Nr. Saffron Walden, Essex CB10 1XL (GB). **LIU, Xiaohai** [CN/GB]; Solexa Limited, Chesterford Research Park, Little Chesterford, Nr. Saffron Walden, Essex CB10 1XL (GB).

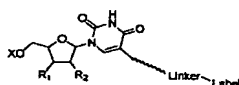
(74) Agents: **MURPHY, Colm, Damien et al.**; Boulton Watt, 70 Gray's Inn Road, London WC1X 8BT (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

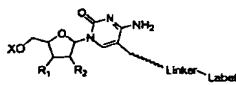
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

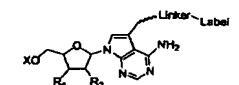
(54) Title: LABELLED NUCLEOTIDES



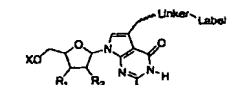
Uracine C5-linker



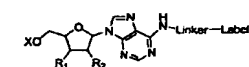
Cytidine C5-linker



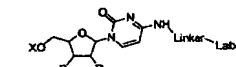
N7 Deszaadenosine C7-linker



N7 Deszaguanosine C7-linker



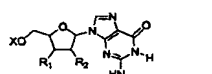
Adenosine N6-linker



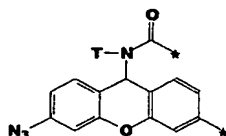
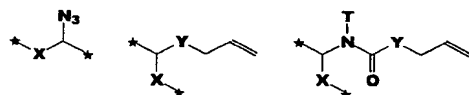
Cytidine N4-linker

where R₁ and R₂, which may be the same or different, are each selected from H, OH, or any group which can be transformed into an OH. Suitable groups for R₁ and R₂ are described in Figure 3

X = H, phosphate, diphosphate or triphosphate



Guanosine N2-linker



(I)

(57) Abstract: The invention provides a nucleotide or nucleoside having a base attached to a detectable label via a cleavable linker, characterised in that the cleavable linker contains a moiety selected from the group comprising : Formula (I) (wherein X is selected from the group comprising O, S, NH and NQ wherein Q is a C₁₋₁₀ substituted or unsubstituted alkyl group, Y is selected from the group comprising O, S, NH and N(allyl), T is hydrogen or a C₁₋₁₀ substituted or unsubstituted alkyl group and * indicates where the moiety is connected to the remainder of the nucleotide or nucleoside).



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

Declaration under Rule 4.17:

- *of inventorship (Rule 4.17(iv)) for US only*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.